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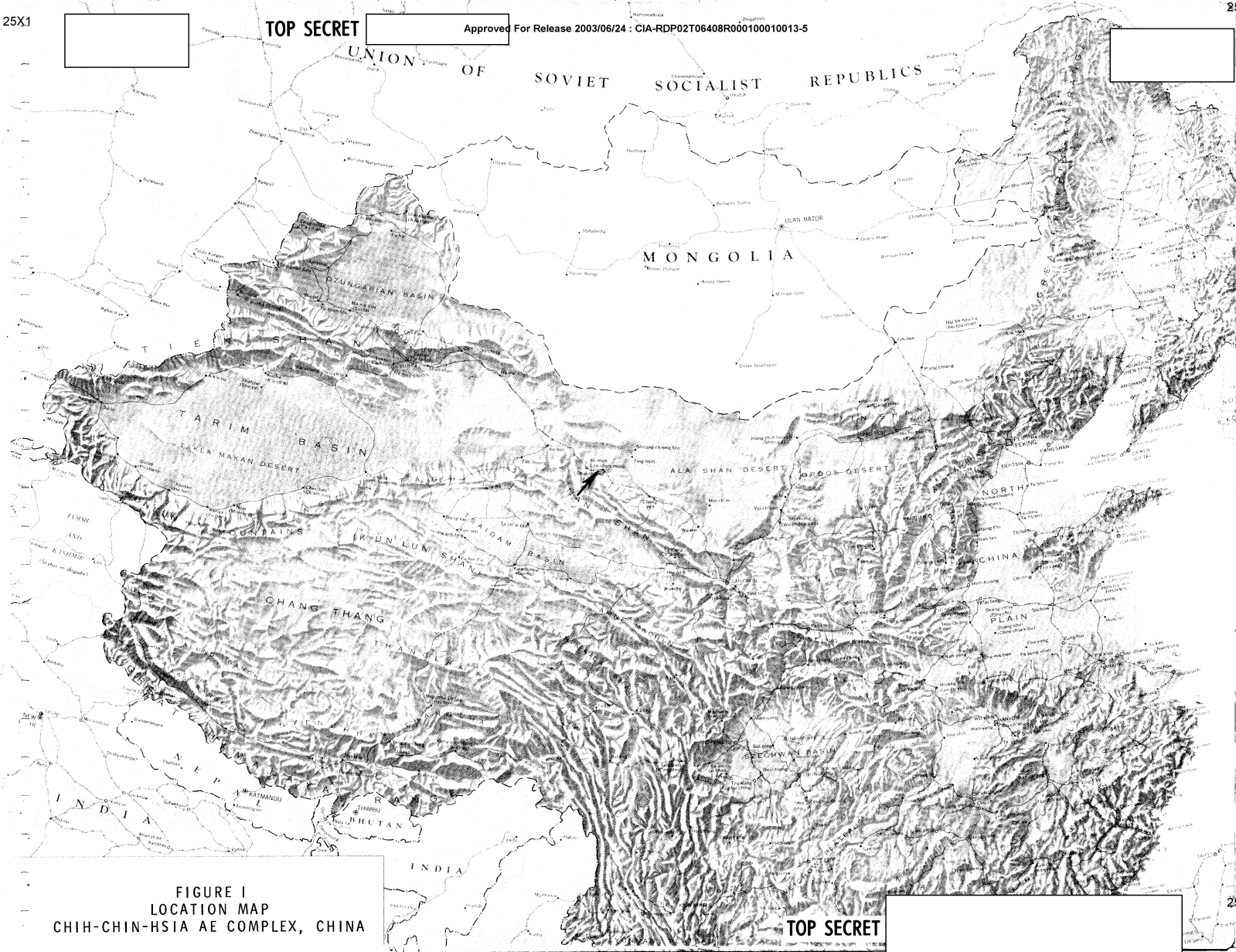


FIGURE I
LOCATION MAP
CHIH-CHIN-HSIA AE COMPLEX, CHINA

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FIGURE 2
CHIH-CHIN-HSIA AE COMPLEX, CHINA

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SECTION III

REACTOR BUILDING
UNDER CONSTRUCTION

SECTION II

POWER PLANT

SECTION I

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CHRONOLOGY OF REACTOR CONSTRUCTION
CHIH-CHIN-HSIA ATOMIC ENERGY COMPLEX, CHINA

The Chih-chin-hsia Atomic Energy Complex (40-05N 97-30E) is located 20 nautical miles southeast of Yu-men, China in Kansu Province. The production area is located on a spur of the Lan-chou to Urumchi railroad which is about 8 nautical miles to the west.

The production area consists of three distinct sections, Section III being where the first large plutonium production reactor is under construction. The Chih-chin-hsia Atomic Energy Complex has been the subject of several previous reports; however, this is the first report to deal exclusively with the "cell-like" structures seen outside the reactor building. This report presents a complete chronology (as seen on photography) of the cells which are believed to be reactor shielding forms and shielding. This detailed analysis is required so that reactor characteristics can be determined which in turn can be used in estimating the Chinese Communist fissionable materials production capability.

From [] to date this atomic energy complex has been covered by 22 usable photographic missions, including one U-2, and three [] satellite missions. The other 18 missions provided [] satellite photography. Although the preparation for the cells was not seen until [] 20 of the 22 missions cover their progress with most of the coverage being since []

On [] the reactor building excavation was at the deepest level seen on photography and construction of the foundation had begun. At that time no cells were evident; however, the construction of the fill (mound) for the bridge cranes and cells had progressed to 450 feet northeast of the rail line which extended through Section III. The two bridge cranes appear to have been installed and were located near the railroad. The length of the bridge crane tracks could not be determined.

The coverage of [] is very poor quality; however, the fill appears to have reached its full length of about 700* feet northeast of the railroad or 1000* feet northeast of the reactor building. There were possibly three cells located on the end of the fill nearest the railroad.

Beginning with the [] coverage the situation is presented graphically with a short description so that a visual comparison may be made. It should be noted that changes indicated are not always new, but may be visible because of mission quality or natural conditions.

The following legend applies to all line drawings of the cells contained in this report:

LEGEND

- Bridge Crane Tracks
- Bridge Crane
- Open Cell
- Covered Cell
- Conical Object
- ▨ As Indicated on Sketches

Comparison with Tomsk Atomic Energy Complex, USSR

The production reactor area under construction at Chih-chin-hsia is very similar to Reactor Area I at the Tomsk Atomic Energy Complex, USSR (56-36N 84-54E). For this reason a brief discussion of the similar features is included in this report.

Tomsk was first seen on photography of [] when portions of Reactor Area I were still under construction. This was followed by three years of no coverage and 16 months in which only poor quality and cloudy coverage was obtained. As a result the continued construction of these facilities was not observed and part of Reactor Area I was in operation when seen again clearly on [] The information gained from studying the Chih-chin-hsia construction should enhance our knowledge of Soviet practices just as the knowledge of the Tomsk reactors will enhance our understanding of the Chih-chin-hsia reactor.

The most prominent items at both complexes are the cooling towers. When first constructed the cooling towers at Tomsk were in a group of six. There is one group of six towers under construction at Chih-chin-hsia. Although the Chinese cooling towers differ in shape/design from the Tomsk towers the base diameters are all 195 feet, and all are natural draft. (See Figure 24)

The second feature of comparison concerns the reactor buildings themselves which are very similar in outward appearance. The dimensions of the Chinese building most closely resemble those of Reactor Building 3 at Tomsk, which is slightly larger than its two predecessors. The Chinese structure is approximately 195 feet long, [] and 120 feet tall. Tomsk Reactor Building 3 is []

Another item of significance by way of comparison involves the methods of construction employed at these two reactor sites. On [] at Tomsk there were two bridge cranes outside Reactor Building 2. These cranes were located on the same side of the building as the "air-lock" building which was in place at that time. Also the ground between the bridge crane tracks has a "squared-off" appearance as if large square objects had recently been setting on the ground. These features indicate that Reactor Building 3 at Tomsk was constructed in a manner similar to the methods described at Chih-chin-hsia. (See Figure 25)

All measurements have been made by the NPIC Technical Intelligence Division, with the exception of those shown with an asterisk (*). These measurements were made by the CIA/IAD project analyst. They should be considered as approximate and must not be taken as official NPIC mensuration data. The NPIC/TID measurements are considered to be accurate within +5 feet or +5%, whichever is greater.

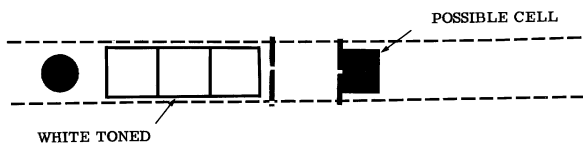
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FIGURE 3



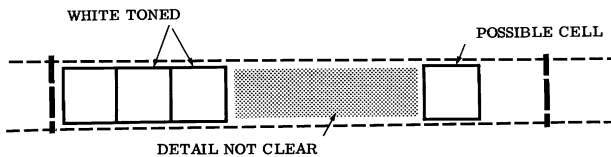
Poor quality precludes detailed interpretation; however, three cells can be seen. A conical object can be seen near the southwest end of the mound. An unidentified object that could be another cell is partially obscured by the shadow of a bridge crane on the northeast end of the mound.

FIGURE 4



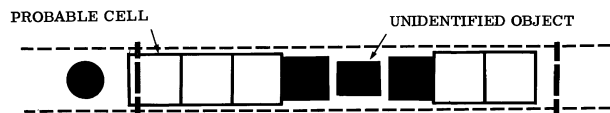
The conical object is visible. Three open cells are on the southwest end of the mound and three open cells are on the northeast end. One probable cell is partially obscured by the bridge crane shadows.

FIGURE 5



Poor quality precludes detailed interpretation. The conical object is not visible, but it may be obscured by the bridge crane. Three open cells and one possible cell can be seen. The second and third cells from the southwest end are white toned.

FIGURE 6



The conical object is visible. Two open cells, one probable open cell, and one covered cell are located on the southwest end of the mound. Two open and one covered cells are located to the northeast end. An unidentified object can be seen between the two groups of cells.

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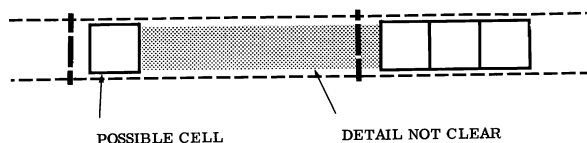
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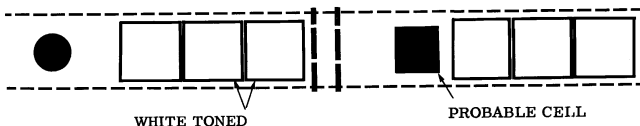
CIA/PIR-63010

FIGURE 7



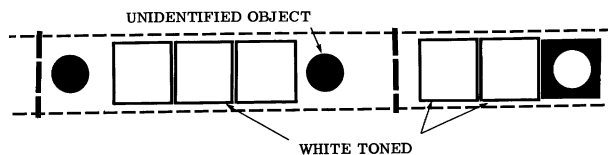
Poor quality precludes detailed interpretation. The conical object is not visible. Three open cells can be seen on the northeast end of the mound, and one possible open cell is on the southwest end.

FIGURE 8



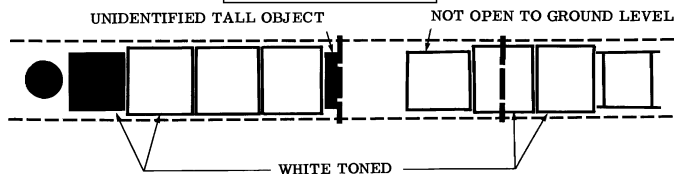
The conical object is visible. Three open cells are on the southwest end of the mound and three open cells are on the northeast end. One probable covered cell can be seen between the two groups of open cells. A definite separation can be seen between each cell. The bridge cranes and their shadows obscure some detail.

FIGURE 9



The conical object is visible. Three open cells are on the southwest end of the mound. Three cells are located on the northeast end, but the one farthest northeast is covered and has a circular opening in the top. An unidentified object, possibly conical, is located between the two groups of cells.

FIGURE 10



The conical object is visible. Next to the northeast side of this object is a covered cell; then three open cells are in line. There are now four open cells on the northeast end of the mound and the farthest one has sides that extend past the ends. The southwest cell of this group does not appear to be open to ground level. The covered cell with the circular opening in the top can not be seen at this time. A bridge crane and its shadow partially obscure a tall unidentified object located between the two groups of cells.

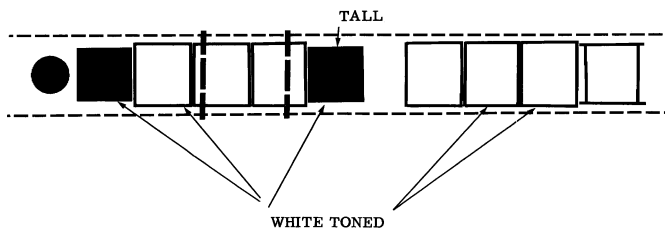
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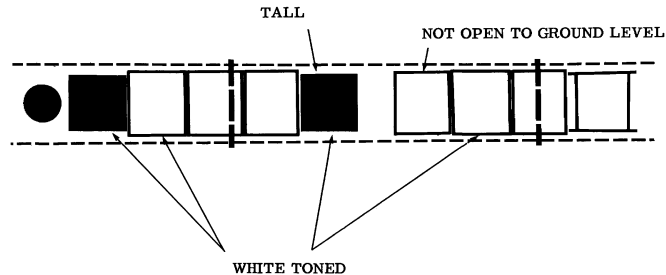
FIGURE II



The area is essentially the same as [redacted] but the bridge cranes have moved making it possible to identify the previously noted unidentified tall object as a covered cell. It appears taller than the others and is white-toned. This is the same position that the possible conical object occupied on [redacted]

FIGURE I2

The area appears essentially unchanged since the [redacted] coverage. The fourth cell from the northeast end is open, but not to ground level. This appears the same as on [redacted] but could not be seen on [redacted] because of quality. The bridge crane tracks definitely extend to the reactor building now.



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FIGURE 13
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CHIH-CHIN-HSIA AE COMPLEX

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BRIDGE CRANES

100X ENLARGEMENT

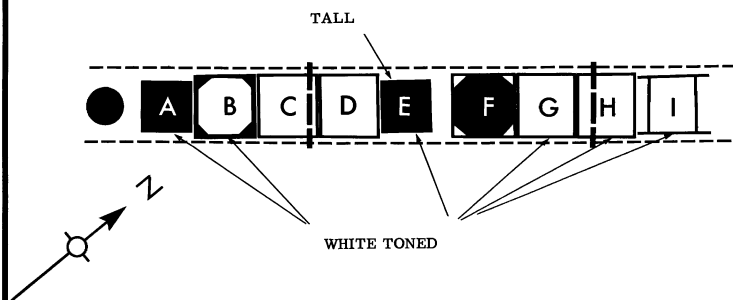
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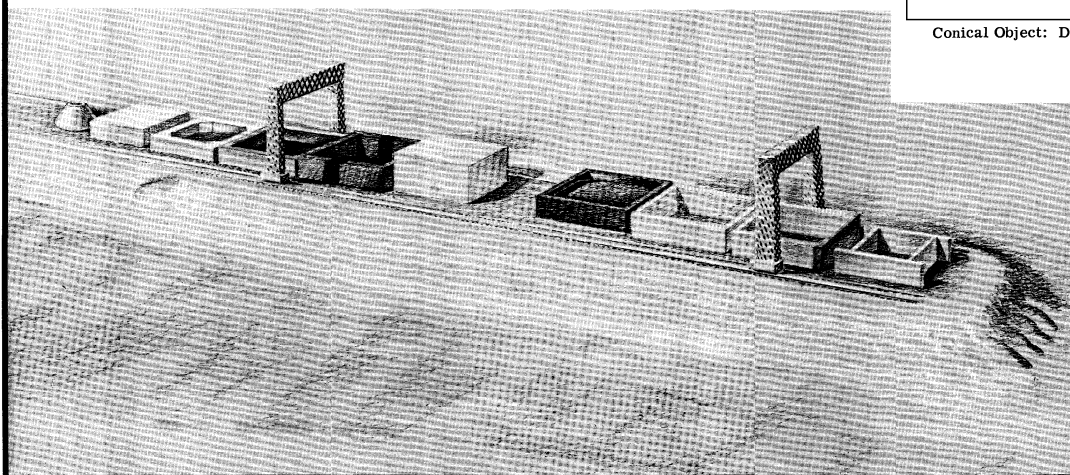
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FIGURE 14



This mission reveals much detail not seen previously on photography. The number and arrangement of the cells is unchanged, and the cell previously noted as not being open to ground level (F) can be more completely described. The floor of this cell is not at ground level and has open corners forming an octagon. This octagon may be a separate object that is enclosed by the higher outside walls, but this cannot be determined with certainty. The cell previously noted as having low walls (B) is octagonal inside and is open to ground level. It appears much like a form or mold and has thick walls. A possible crane boom can be seen on the north corner of this cell.

Conical Object: Diameter - Base - 35'
Height - 15'



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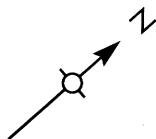
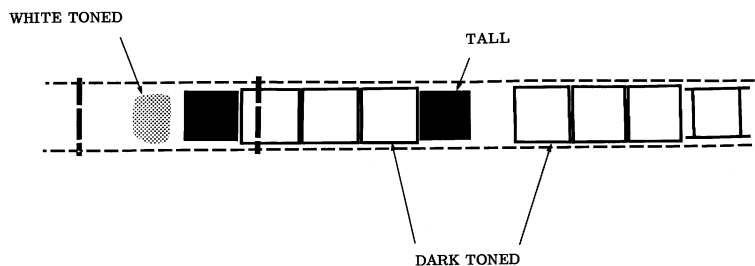
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25X1

FIGURE I5

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The conical object appears to have been removed and the area it occupied is very white. The cells appear unchanged since [redacted] but the quality of this [redacted] photography is not good enough for comparison of small details.

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FIGURE 16
CELL ARRANGEMENT
CHIH-CHIN-HSIA AE COMPLEX

REACTOR BUILDING
UNDER CONSTRUCTION

BRIDGE CRANES

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100X ENLARGEMENT

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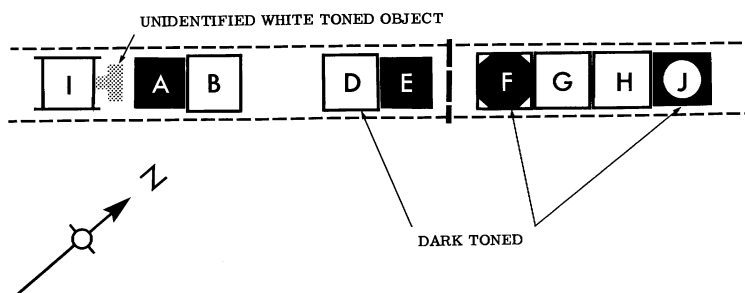
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FIGURE I7

25X1



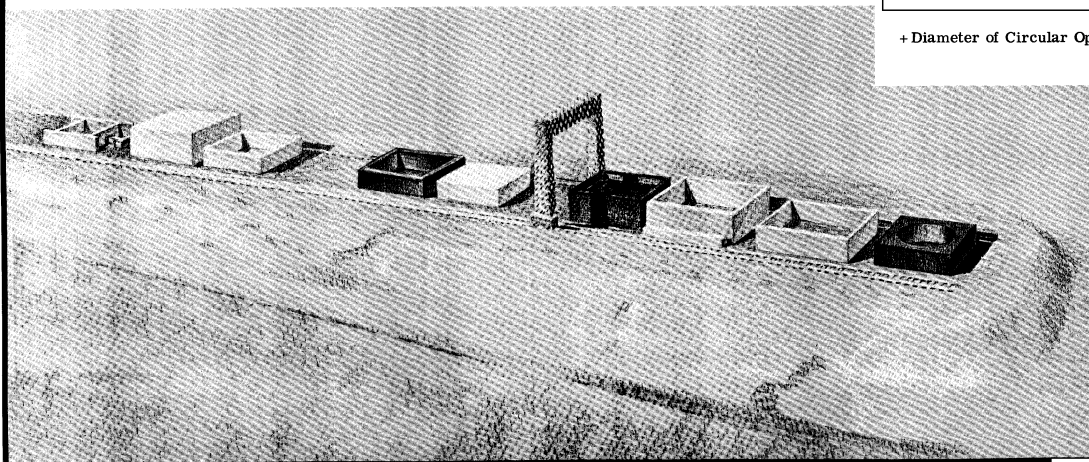
The cells have definitely been rearranged since [redacted]. The number of cells is unchanged; however, one may have been removed and a new one placed in line. The cell that was farthest northeast (I) has been moved to the farthest southwest position, and is across the path of the now dismantled section of railroad. An unidentified white rectangular object is at its northeast side. In the former position of this cell (I) a new covered cell (J) with a circular opening in the top has been placed. The walls of the third cell from the southwest (B) measure 5 feet thick instead of 10 feet as on [redacted]. The extra thickness may have been related to construction. The southwest bridge crane is located adjacent to the reactor building.

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+ Diameter of Circular Opening - 35'



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FIGURE 18
CELL ARRANGEMENT
CHIH-CHIN-HSIA AE COMPLEX

BRIDGE CRANES

REACTOR BUILDING
UNDER CONSTRUCTION

100X ENLARGEMENT

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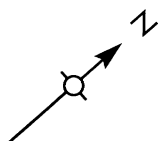
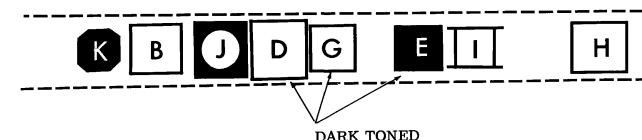
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FIGURE 19

25X1



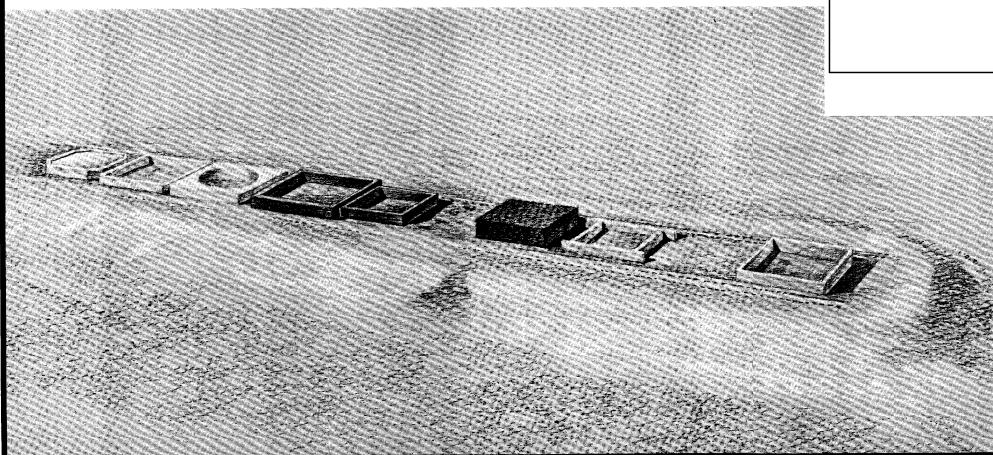
Both bridge cranes are inside the reactor building and a white toned object is partially visible beneath them. This is probably one of the cells (A & F) that is missing from the mound since [redacted]. The other cells have been repositioned again, and a new cell (K) can be seen on the southwest end. This cell is covered and is octagonal such as the object inside the cell (F) seen on [redacted]. The octagonal inside of the thick walled cell (B) could not be seen on [redacted] and can not be seen on this mission. This shape may have been related to the construction of the cell itself. The cell with the circular opening in the top (J) appears white-toned instead of dark-toned as before. This could be a new cell.

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25X1

25X1

25X1



25X1

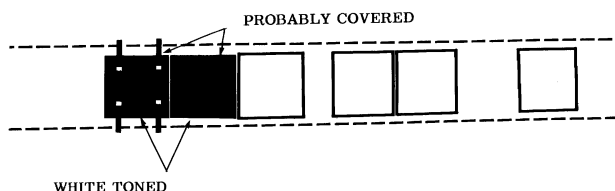
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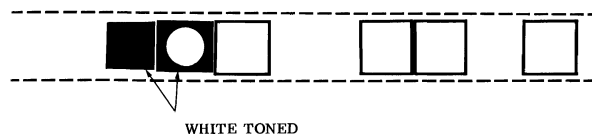
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FIGURE 20



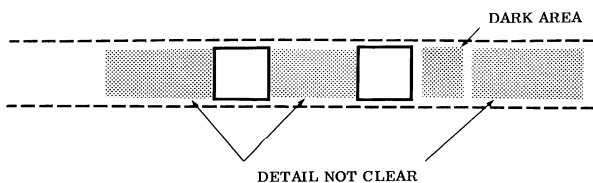
Poor quality precludes detailed interpretation, and only six cells are visible. The first two cells from the southwest end of the mound are probably covered and the other four appear to be open. The two probably covered cells are very white-toned.

FIGURE 21



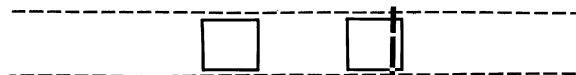
Poor quality, haze, and lack of stereo coverage precludes detailed interpretation. Six cells are still visible as on [redacted]. The first two cells from the southwest end are white-toned and covered, but the second one appears to have a round opening in the top. The bridge cranes are not visible.

FIGURE 22



Poor quality precludes detailed interpretation. The shadows of two cells are apparent but no others can be seen. One bridge crane is located where the railroad previously intersected the bridge crane tracks. A dark area northeast of the northeast cell may be the shadow of the other bridge crane.

FIGURE 23



All but two dark-toned, open cells have been removed, and the reactor building has been closed. A building probably serving as an airlock and clean chamber has been constructed on the northeast side of the reactor building. One bridge crane is near this structure while the other is over the northeast cell. The airlock building appears to have been under construction on [redacted] indicating that all cells other than the two mentioned in this paragraph were in the reactor building before that date.

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FIGURE 24
CHIH-CHIN-HSIA AE COMPLEX

COOLING TOWERS
UNDER CONSTRUCTION

TOMSK AE COMPLEX, USSR
REACTOR AREA I

REACTOR 1

REACTOR 2

REACTOR 3

FEET

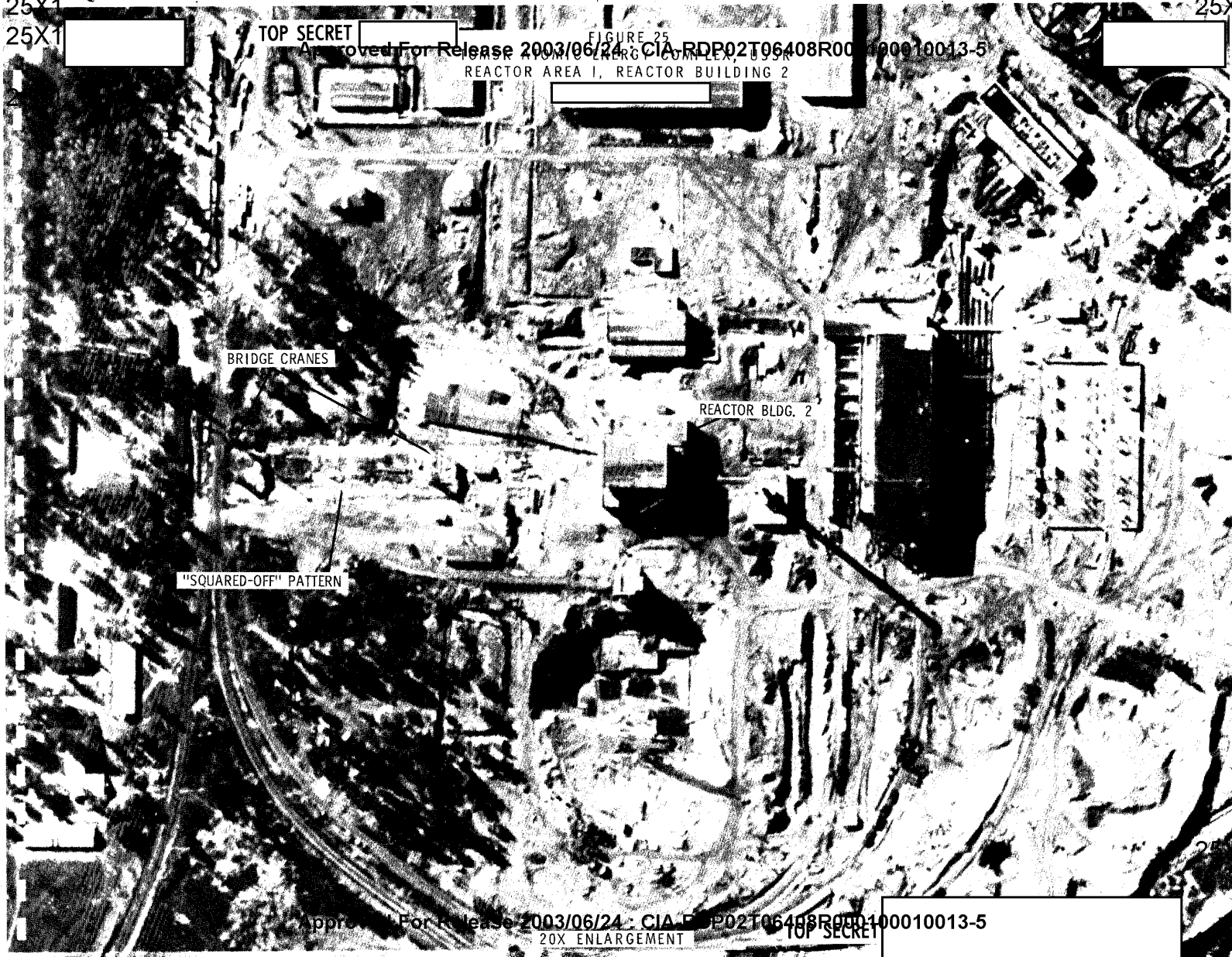
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6X ENLARGEMENT

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FIGURE 25

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REACTOR AREA 1, REACTOR BUILDING 2

BRIDGE CRANES

REACTOR BLDG. 2

"SQUARED-OFF" PATTERN

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20X ENLARGEMENT

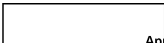
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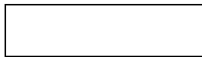
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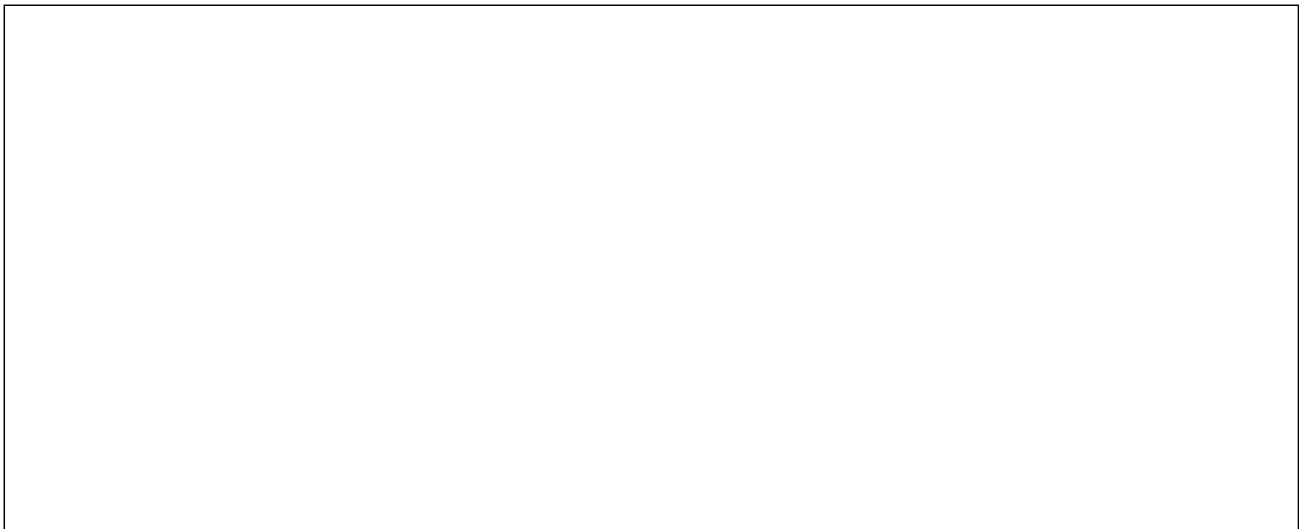
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25X1



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REQUIREMENT NO.

C-SI5-82, 643

PROJECT NO.

30775-5

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